



## The Effect of Dhikr on Preoperative Anxiety Among Women Undergoing Elective Cesarean Section: A Pre-Experimental Study

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### Abstract

Preoperative anxiety in women undergoing cesarean section (CS) is a common problem that can affect physical and psychological conditions, including increased blood pressure, heart rate, and stress hormones, which can interfere with the surgical process and postoperative recovery. Spiritual approaches such as dhikr (Islamic prayer chanting) have been shown to calm the mind, improve emotional stability, and enhance patients' mental readiness before surgery. This study employed a single-group pretest-posttest pre-experimental design with 15 respondents from the Central Surgical Unit of Islamic Hospital of Nahdlatul Ulama (NU) Demak selected through purposive sampling. The dhikr intervention was conducted for 10 minutes, guided by a nurse before surgery. Anxiety levels were measured before and after the intervention using the Amsterdam Preoperative Anxiety and Information Scale (APAIS). The average anxiety score decreased from 24.6 before the intervention to 14.07 after the dhikr, and the Wilcoxon Signed-Rank test ( $Z = -3.413$ ,  $p = 0.001$ ) showed a statistically significant decrease. These results indicate that spiritual interventions, including dhikr (remembrance of God), are effective in reducing preoperative anxiety by increasing psychological and physiological calm. These findings support the integration of dhikr into holistic nursing care to enhance psychological stability and mental readiness in patients.

**Keywords:** Dhikr, Anxiety, Cesarean Section, Preoperative

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## 1. BACKGROUND

Childbirth can occur either spontaneously or artificially. Spontaneous childbirth occurs naturally through the birth canal, whereas artificial childbirth requires medical interventions such as forceps or a cesarean section (SC) (Fitriani

& Nurwiandani, 2018). SC is a surgical procedure to deliver the fetus through an incision in the abdominal wall and uterus. Data from 2015 indicate that the ideal SC rate ranges from 5% to 15%, yet its prevalence continues to rise globally (WHO, 2015). In Indonesia, the 2018

RISKESDAS reported an SC prevalence of 17.6%, which is higher than the WHO standard, with the majority of procedures performed in private hospitals (Ayuningtyas, 2018).

The rising number of SCs is also evident at Islamic Hospital of Nahdlatul Ulama (NU) Demak. Data from the Central Surgical Installation in 2023 revealed 280 SC procedures, with the majority being elective. Although an important medical solution, the procedure often induces anxiety in patients. Preoperative anxiety may stem from fear of surgery, anesthesia effects, risk of complications, and concerns about the baby's condition. Physiological impacts include increased heart rate, breathing, and disrupted oxygen supply to the fetus (Satriyawati, 2021; Sulfianti, 2020). In addition, post-SC patients face complex recovery challenges, one of which is fulfilling their personal hygiene needs. Hoga et al. (2021) emphasized that personal hygiene for post-surgical care (SC) patients is crucial for comfort, infection prevention, and accelerated wound healing.

Various factors contribute to anxiety, including lack of preoperative education, negative family experiences, and an unfamiliar hospital environment. Management can be both pharmacological

and non-pharmacological. Non-pharmacological approaches, particularly spiritual therapy in the form of dhikr (Islamic chanting), have been proven effective in reducing anxiety. Previous studies showed significant differences in anxiety levels before and after dhikr (Oktavia, 2022; Wibowo, 2023). Dhikr is considered more personal and profound than therapeutic communication (Satriyawati, 2021; Noor, 2018).

According to Pargament's spiritual coping framework, religious coping strategies enable individuals to manage stress by providing meaning, emotional comfort, and a sense of control through spiritual beliefs and practices (Pargament & Exline, 2021). In this context, dhikr functions as a positive religious coping mechanism that may reduce preoperative anxiety by enhancing inner calm, surrender (tawakkal), and psychological resilience.

As an Islamic-based hospital with a strong religious culture, the Islamic Hospital of Nahdlatul Ulama (NU) Demak has never studied the effectiveness of dhikr in reducing preoperative anxiety in caesarean section patients. Based on this phenomenon, it is very necessary to carry out research to determine the effect of remembrance therapy on anxiety levels in preoperative caesarean section patients at

the Central Surgical Unit of Islamic Hospital of Nahdlatul Ulama (NU) Demak.

## 2. METHODS

This study conducted at the Central Surgical Unit of Islamic Hospital of Nahdlatul Ulama (NU) Demak, employed a pre-experimental design with a one-group pre-posttest. Purposive sampling was employed by selecting participants who met the predetermined inclusion criteria: Muslim patients undergoing elective cesarean sections (either for the first time or repeat cesarean sections) and willing to participate by signing an informed consent form. Exclusion criteria included patients undergoing emergency cesarean sections and respondents who withdrew from the study. Through purposive sampling, 15 participants who met the inclusion criteria were included in this study, based on eligibility and the availability of eligible patients during the data collection period.

The independent variable was dhikr therapy, while the dependent variable was the preoperative anxiety level of cesarean section patients. The research instrument used was the Amsterdam Preoperative Anxiety and Information Scale (APAIS), an

Indonesian adaptation, which has been tested for content validity through expert assessment and reliability, with Cronbach's Alpha values of 0.825 (anxiety) and 0.863 (information need) (Perdana et al., 2015).

Data analysis consisted of univariate analysis to describe respondent characteristics and bivariate analysis using the Wilcoxon Signed Rank Test, as the ordinal nature of the APAIS scores and the small sample size ( $n = 15$ ) did not support the assumption of normal data distribution (Dahlan, 2014). The ethical aspects of the study adhered to the principles of informed consent, anonymity, confidentiality, beneficence, and fairness (CIOMS, 2016). This study received ethical approval from the Research Ethics Committee of the Faculty of Health Sciences, UNIPDU Jombang, with ethical number 070-KEP-UNIPDU/06/2025.

## 3. RESULTS

### Respondent Characteristics

Respondent characteristics in this study included age, education level, occupation, and cesarean section (SC) status, as explained in the table below.

**Table 1. Frequency Distribution of Respondents Based on Demographic Data (n=15)**

Characteristics	Frequency (f)	Percentage (%)
<b>Age</b>		
26–35 years (Early Adulthood)	13	87
36–45 years (Middle Adulthood)	2	13
<b>Education Level</b>		
Bachelor's degree	1	6
Senior High School	14	94
<b>Occupation</b>		
Housewife	6	40
Private Employee	3	20
Entrepreneur	6	40
<b>Sectio Caesaria Status</b>		
First-time	11	73
Repeat	4	27

Based on Table 1, all respondents in this study were women, consistent with the characteristics of pregnant mothers undergoing elective cesarean section. The majority were aged 26–35 years (87%), categorized as being in early adulthood during the active reproductive period, making them relatively well-prepared biologically and psychologically for childbirth. In terms of education, most respondents had completed senior high school (93.3%), while only 6.7% held a bachelor's degree. This level of education influences knowledge and attitudes in managing anxiety through the practice of

dhikr. Respondents' occupations included housewives (40%), private employees (20%), and others without permanent work. Meanwhile, most underwent their first cesarean section (73.3%), while the rest were repeat procedures (26.7%), which may have influenced their preoperative anxiety experiences.

#### Preoperative Anxiety in Cesarean Section Patients Before Dhikr Therapy

The following table presents the frequency distribution of anxiety scores in preoperative cesarean section patients before undergoing dhikr therapy.

**Table 2. Frequency Distribution of Anxiety Scores in Preoperative Cesarean Section Patients Before Dhikr Therapy (n = 15)**

Category	Frequency (f)	Percentage (%)
Severe Anxiety (Score 19–24)	9	60
Panic Condition (Score 25–30)	6	40
<b>Total</b>	<b>15</b>	<b>100</b>

The measurements presented in Table 2 show that most respondents were

in the severe anxiety category (60%), while the rest experienced panic (40%). This

indicates that all pregnant women scheduled for elective cesarean section had high levels of anxiety prior to the dhikr intervention. Such elevated anxiety reflects natural concerns before surgery, thereby highlighting the need for psychological support and spiritual interventions such as dhikr to help reduce it.

**Table 3.** Median Anxiety Scores in Preoperative Cesarean Section Patients Before Dhikr Therapy (n = 15)

Category	Frequency (f)	Percentage (%)
Mild Anxiety (Score 7-12)	4	27
Moderate Anxiety (Score 13-18)	11	73
Total	15	100

As shown in Table 3, the median value was reported because the anxiety scores were ordinal and not normally distributed. Based on Table 3, after the dhikr intervention, anxiety levels decreased, with most respondents in the moderate anxiety category (73%) and the rest in the mild anxiety category (27%). None of the respondents remained in the severe anxiety or panic categories. These results indicate that dhikr is effective in reducing preoperative anxiety among

### Preoperative Anxiety in Cesarean Section Patients After Dhikr Therapy

The following table presents the frequency distribution of anxiety scores in preoperative cesarean section patients after undergoing dhikr therapy.

pregnant women undergoing cesarean section and can serve as a simple yet meaningful non-pharmacological intervention.

### The Effect of Dhikr Therapy on Preoperative Anxiety in Elective Cesarean Section

Bivariate analysis was conducted to determine the difference in patients' anxiety levels before and after the dhikr intervention.

**Table 4.** Bivariate Analysis Using Wilcoxon Signed-Rank Test of Pre-Post Dhikr Anxiety Scores (n = 15)

Variable	Median (IQR)	Mean Rank	Z-statistic	p-Value	Interpretation & Effect Size
Pre-	24.0	—	—	—	—
Post-	15.0	—	—	—	—
Difference (Post - Pre)	—	Positive: 0.00 Negative: 8.00	-3.413	0.001	Significant (*p* < 0.05) Effect Size (*r*) = 0.88 (Large Effect)

Based on Table 4, the change in preoperative anxiety following the dhikr intervention was analyzed using the Wilcoxon Signed-Rank Test, as the assumptions for a parametric test were not met due to the small sample size ( $n = 15$ ) and the ordinal nature of the APAIS scores. The results indicated a statistically significant reduction in anxiety levels after the therapy ( $Z = -3.413, p = 0.001$ ). As shown in Table 4, the median anxiety score decreased from 24.0 (IQR: 23.0-26.0) to 15.0 (IQR: 13.0-16.0). The negative ranks (Mean Rank = 8.00) show a consistent direction of change across participants. The calculated effect size ( $r = 0.88$ ) indicates a large magnitude of effect for the dhikr intervention.

#### 4. DISCUSSION

##### Anxiety Levels in Preoperative Cesarean Section Patients Before Dhikr Therapy

The findings of this study indicate that all respondents experienced high levels of anxiety prior to undergoing elective cesarean section, with the majority classified as severe anxiety and panic. This result reflects the psychological vulnerability of women facing surgical childbirth, which is commonly perceived as a high-risk medical procedure involving concerns for maternal and fetal safety. Fear of anesthesia, anticipated postoperative

pain, uncertainty regarding surgical outcomes, and worries about family responsibilities are well-recognized contributors to preoperative anxiety.

These findings are consistent with international literature reporting elevated anxiety levels among women awaiting cesarean section. Studies conducted in various countries have shown that preoperative anxiety is prevalent among surgical patients, particularly in obstetric populations, due to both physiological stress responses and psychological anticipation of surgery (Nigussie et al., 2014; Stamenkovic et al., 2018). Preoperative anxiety has been associated with poorer postoperative outcomes, including increased pain perception and delayed recovery, underscoring its clinical significance.

Previous national studies also support this pattern. Oktavia et al. (2022) and Rissa (2024) reported that anxiety in preoperative cesarean section patients is influenced by factors such as age, education level, prior surgical experience, family support, and the quality of information provided by healthcare professionals. Collectively, these findings suggest that high preoperative anxiety is a common and expected condition that warrants targeted intervention.

## Anxiety Levels in Preoperative Cesarean Section Patients After Dhikr Therapy

Following the dhikr intervention, a substantial reduction in anxiety levels was observed, with most participants shifting to moderate or mild anxiety categories and none remaining in severe anxiety or panic. This change indicates a meaningful psychological transition from fear and tension to a calmer and more accepting emotional state prior to surgery.

Similar outcomes have been reported in international studies examining the effects of religious and spiritual interventions in clinical settings. Research on spiritual coping and religious practices has demonstrated their effectiveness in reducing anxiety and emotional distress by enhancing emotional regulation, meaning-making, and inner calm (Pargament & Exline, 2021; Koenig, 2012). In medical contexts, spiritual practices have been shown to activate relaxation responses and promote psychological resilience, particularly among patients facing invasive procedures.

National studies further reinforce these findings. Hafil and Ningrum (2023) as well as Wibowo and Febriana (2023) reported significant reductions in preoperative anxiety among cesarean section patients following dhikr intervention. From a physiological

perspective, dhikr may stimulate parasympathetic nervous system activity, counteracting sympathetic overactivation associated with anxiety. This mechanism contributes to reductions in heart rate, blood pressure, and stress hormone levels, thereby supporting emotional stability and relaxation (Sufyan & Wardani, 2023).

## The Effect of Dhikr on Anxiety Levels in Preoperative Cesarean Section Patients

The present study demonstrated a statistically significant reduction in anxiety scores after dhikr therapy. These preliminary findings suggest that dhikr may be a beneficial spiritual intervention for reducing anxiety in pregnant women prior to cesarean section surgery, highlighting its potential as a simple, non-pharmacological adjunct to standard preoperative care. This finding aligns with international evidence suggesting that spiritual practices serve as effective coping strategies, helping individuals manage stress through surrender, trust in God, and enhanced psychological preparedness (Pargament & Exline, 2021).

This finding aligns with international evidence suggesting that spiritual practices serve as effective religious coping strategies, helping individuals manage stress through surrender, trust in God, and enhanced

psychological preparedness (Pargament & Exline, 2021).

Unlike general relaxation techniques, dhikr involves the internalization of spiritual meaning, fostering a sense of closeness to God and strengthening adaptive coping mechanisms. This deeper spiritual engagement may explain the consistent reduction in anxiety observed among all participants. Similar conclusions have been reported by international and national studies, highlighting that spiritually based interventions can produce both psychological and physiological benefits, particularly in high-stress medical situations (Koenig, 2012; Rusdin et al., 2021).

Consistent with national studies by Rusdin et al. (2021) and Rahmawati (2019), this study confirms that dhikr is effective not only in reducing subjective anxiety but also in supporting patients' readiness to face surgical procedures. From a nursing perspective, dhikr represents a simple, low-cost, culturally appropriate, and safe complementary intervention that can be integrated into holistic perioperative nursing care, particularly in Islamic-based healthcare institutions.

Dhikr may influence anxiety through neuroendocrine regulation, particularly by suppressing the activity of the

hypothalamic-pituitary-adrenal (HPA) axis. During dhikr practice, hypothalamic stimulation decreases, leading to a reduction in the secretion of corticotropin-releasing factor (CRF) and adrenocorticotropic hormone (ACTH). Consequently, cortisol levels decline, resulting in reduced physiological stress responses, such as elevated heart rate and blood pressure (Priya & Kalra, 2019).

This mechanism explains how dhikr contributes not only to emotional calmness but also to measurable physiological relaxation. Therefore, dhikr functions as both a spiritual coping strategy and a biologically plausible intervention for anxiety reduction.

## Limitations of the Study

This study has several limitations that should be acknowledged. The small sample size and pre-experimental design limit the generalizability of the findings. In addition, the study was conducted in a single Islamic-based hospital, which may restrict the applicability of the results to other healthcare settings with different cultural or religious backgrounds. Despite these limitations, the study provides preliminary evidence supporting the feasibility and potential effectiveness of dhikr as a complementary intervention for reducing preoperative anxiety. It may serve

as a foundation for future research with larger samples and more rigorous study designs.

## 5. CONCLUSION

Based on the findings of this study, anxiety levels among mothers scheduled for cesarean section were relatively high prior to dhikr therapy. After the dhikr intervention, anxiety levels decreased significantly, indicating that dhikr had a positive effect in reducing preoperative anxiety ( $p < 0.001$ ).

These results suggest that dhikr can be used as an effective non-pharmacological and spiritual intervention to support psychological well-being in preoperative cesarean section patients. Patients are encouraged to practice dhikr regularly as a self-calming strategy prior to surgery. At the institutional level, RSI NU Demak may consider integrating dhikr or Qur'anic recitation adjusted to patients' religious backgrounds into holistic nursing care to reduce anxiety and improve service quality.

Future studies are recommended to involve larger sample sizes, more extended intervention periods, and comparative designs with other anxiety-reduction interventions to strengthen the evidence base.

## AUTHOR CONTRIBUTIONS

Bagus Ulin Nuha: Conceptualization, methodology, supervision. Akhmad Safi'i: Validation, formal analysis, writing-review & editing. M. Rajin: Data curation, investigation, resources. Ninik Azizah: Writing-original draft, visualization, project administration.

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## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this research.

## DATA AVAILABILITY STATEMENT

The data supporting the findings of this study were obtained from nurse respondents in the Central Surgical Installation (IBS) of Islamic Hospital of Nahdlatul Ulama (NU) Demak. Due to confidentiality and ethical considerations, the data are not publicly available. However, the datasets can be accessed from the corresponding author upon

reasonable request and with permission from the institution.

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